

4. $\int \frac{1}{x^2+3x-10} dx = \int \frac{1}{(x-2)(x+5)} dx$

$$= \int \frac{\frac{1}{7}}{x-2} - \frac{\frac{1}{7}}{x+5} dx = \frac{1}{7} \left[\ln|x-2| - \ln|x+5| \right] + C$$

$$A(x+5) + B(x-2) = 1$$

$$x = -5 \quad B(-7) = 1 \quad B = -\frac{1}{7}$$

$$x = 2 \quad 7A = 1 \quad A = \frac{1}{7}$$

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Review 7 relation of f, f', f''

$f' > 0$, f increasing
 $f' < 0$, f decreases

$f' = 0$ - f has a max
 or $+ \times -$ pointy max

$f' = 0$ + f has a min
 $- \times +$ pointy min

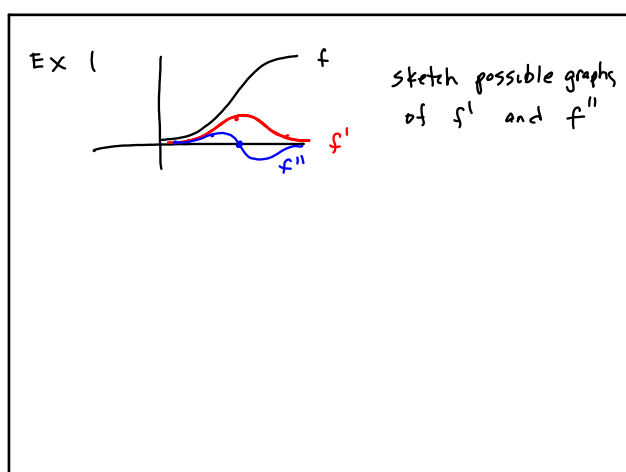
$f' = 0$ + f flat point
 $- 0 -$

$f'' > 0$ f concave up
 $f'' < 0$ f concave down

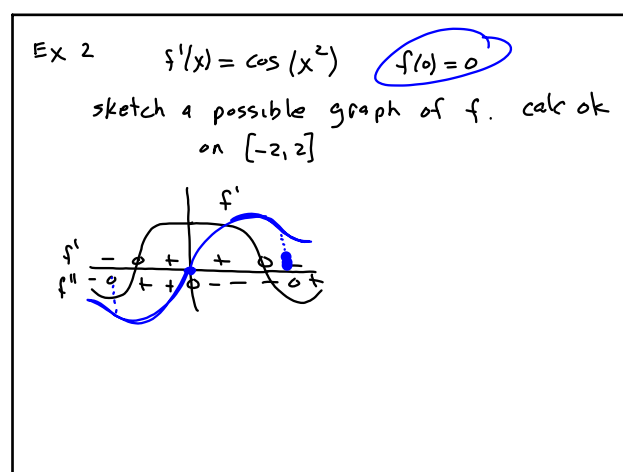
f'' changes sign
 f has inflection pt.

$f' = 0$ $f'' > 0$ $\left(\begin{smallmatrix} ++ \\ \text{min} \end{smallmatrix} \right)$
 $f' = 0$ $f'' < 0$ $\left(\begin{smallmatrix} -- \\ \text{max} \end{smallmatrix} \right)$

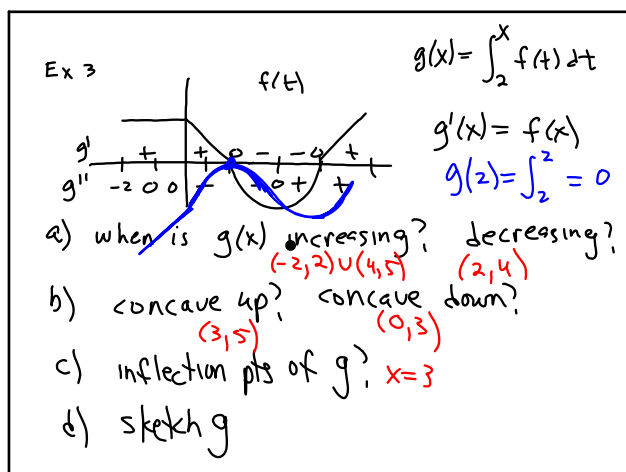
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